

Staff Analysis of Proposed Amendment to the
Dane County Regional Development Guide, Water Quality and
Farmland Preservation Plans **Revising the**
Cross Plains Urban Service Area Boundary and Environmental Corridors

1. Applicant: Village of Cross Plains.
2. Title: Amendment to the Dane County Regional Development Guide, Water Quality and Farmland Preservation Plans: Revising the Cross Plains Urban Service Area Boundary and Environmental Corridors
3. Location: S 1/2, NE 1/4 Section 4, T7N, R7E, Town of Cross Plains and SE 1/4 Section 35, T8N, R7E, Town of Berry, Dane County, Wisconsin
4. Description of Proposed Amendment

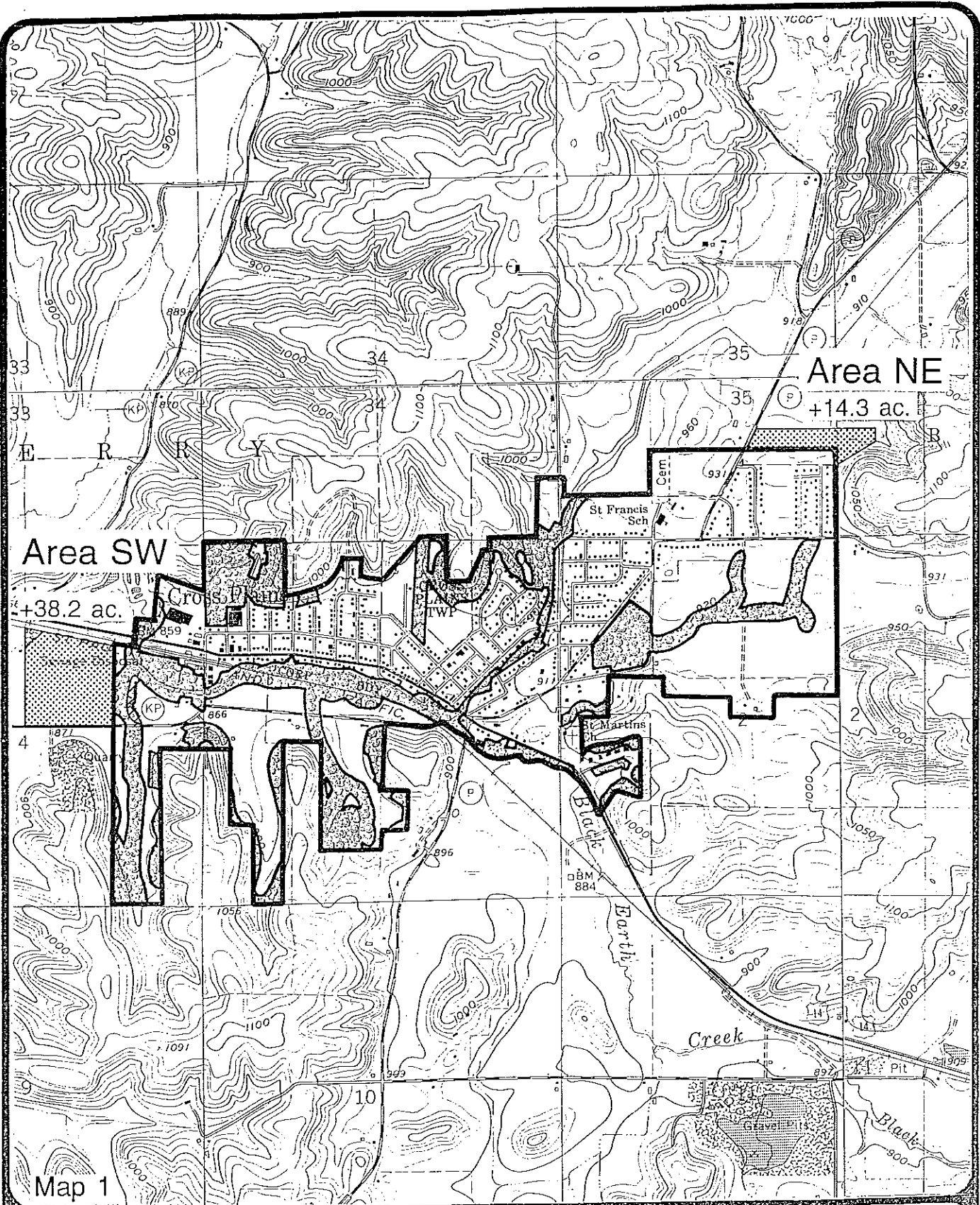
In November 1990 the Village of Cross Plains adopted an update to its Master Plan to guide the Village's development for the next 20 years. To implement some of its plan recommendations, the Village proposes to adjust the adopted Cross Plains Urban Service Area (USA) boundary and environmental corridors. As part of this revision, the Village is now in the process of annexing two areas, one in the Town of Berry (23 acres) and one in the Town of Cross Plains (55 acres); both annexations are partially in the existing urban service area.

The proposed amendment would add 52.5 acres in two areas, including 1.9 acres of county highway right-of-way. The existing environmental corridor north of CTH KP would be reduced by 1.9 acres, and a half-acre stormwater retention basin would be added to the environmental corridor. The result of the amendment is a net expansion of 52 acres of developable land in the revised urban service area. This would increase the total Cross Plains USA to 859 acres, with 107 acres within environmental corridors, not classified as developed land uses, such as recreation or institutional.

The specific changes to the urban service area boundary and environmental corridors include:




1. Area NE (east of CTH P) Ziegler property - 14.3 developable acres for residential development.
2. Area SW (north of CTH KP) Glacial Valley Commerce Park - 38.2 acres proposed for business park development; a reduction of 1.4 acres in environmental corridors and 1.9 acres of county highway right-of-way, resulting in 37.7 developable acres.

These two areas are displayed on Map 1.



Map 1

**CROSS PLAINS
URBAN SERVICE AREA**

-  Area to be added
-  Environmental Corridor to be deleted
-  Environmental Corridor



2/17/94
1" = 2000'

5. Consistency With Adopted Plans and Policies

The Cross Plains USA was originally delineated in 1973 as part of the preparation of the Dane County Land Use Plan (now Regional Development Guide). The service area was subsequently revised in 1978 during the preparation of the plan for the Village of Cross Plains. It was again revised during a Village Plan update in 1985 and 1990. The 1985 revision also included the delineation of 203 acres of environmental corridors in the urban service area.

The purpose of the proposed amendment is to revise the urban service boundary and environmental corridors in adopted regional plans to reflect the revised Cross Plains Master Plan. The Master Plan was based on the older 2010 population forecast. The current population forecast provides for a maximum 2020 urban service area of 1,278 acres to be consistent with adopted population forecasts and density standards. The current urban service area is 807 acres; thus, the maximum allowable USA addition is 471 acres, which is substantially more than the proposed amendment.

6. Existing Environment

The Cross Plains Urban Service Area (with an estimated 1993 Village population of 2,658) is situated in the Black Earth Creek Watershed in western Dane County. Existing land use within the proposed service area amendment is agricultural. Industrial land use exists in the village east of the proposed addition near CTH KP. Single-family residential land use occurs in the Village adjacent to the proposed NE area addition.

The geology and soils of the area are varied. All of the proposed addition north of CTH KP consists of sand and gravel outwash plain, while the area east of CTH P is comprised of ground moraine.

The major soil series within the proposed service area addition above CTH KP is Plano silt loam, which is a well-drained or moderately well-drained, nearly level soil. It generally has slight to moderate limitations for development. Troxel silt loam soil is also found within the adjacent drainageway and environmental corridor, a small section of which is to be deleted as part of the proposed amendment. Troxel soil has severe limitations for development due to seasonal flooding.

The principal soil series within the proposed addition east of CTH P is McHenry silt loam. It has moderate limitations for development due to slope. Associated soils consist of Radford and Seaton silt loams. Seaton soils are erodible and have moderate limitations for development. Radford soils have very severe limitations for development due to a seasonal high water table.

Surface water drainage near CTH P is north and northwesterly to Brewery Creek. The 100-year floodplain of the creek is about 200 feet from this part of the service area addition. There are no wetlands or other resource features in this area, except for an intermittent drainageway which is adjacent to the northeast corner of the proposed

addition. Brewery Creek flows southwesterly through the Village of Cross Plains and discharges to Black Earth Creek near the intersection of Highway 14 and CTH P.

North of CTH KP, immediately east of the proposed SW area addition, is an intermittent drainageway and environmental corridor which extends to Black Earth Creek. Part of the drainage from the proposed addition goes to this corridor. However, drainage from most of this site is not channelized and occurs in a northwesterly direction to Black Earth Creek. No wetlands have been identified in this area.

Black Earth Creek is considered one of the most productive trout streams in Wisconsin and has been the focus of numerous management and research studies, including the Black Earth Creek Priority Watershed Project, which is currently being implemented. The Department of Natural Resources has designated the creek (above the Cross Plains Wastewater Treatment Plant) as an "Outstanding Resource Water." Downstream of this point, the creek is classified as an "Exceptional Resource Water."

The depth to groundwater is about 10 to 25 or more feet in both parts of the proposed service area amendment. Sandstone bedrock is commonly over 50 feet deep in each of these areas.

Archeological information on file at the RPC does not list any prehistoric cultural sites within the proposed service area amendment. Available information on endangered resources does indicate the existence of endangered species within the proposed addition north of CTH KP.

7. Impacts of Proposal

Impacts on Urban Services

Existing sanitary sewers and water mains can be extended to serve the proposed service area additions. The residential development in the NE area would not affect population forecasts or projected flows to the Village wastewater treatment plant. The proposed printing plant near CTH KP is estimated to generate additional wastewater at a rate of only 0.02 million gallons per day (200 employees x 100 gal/day max.), largely because all industrial process and cooling water will be recycled. However, other industrial facilities could increase the total wastewater flow for this amendment to 0.06-0.08 MGD (based on 2,000-3,000 gal. per acre per day). This could increase the 2020 wastewater flow forecast (currently 0.39 mgd) for the Cross Plains USA above the treatment plant's design capacity (0.45 mgd). Thus, possible industrial land uses might necessitate plant expansion at an earlier date. High strength (i.e., high biochemical oxygen demand) industrial waste also could stress the plant's design capacity, and this should be carefully considered as part of future industrial facility proposals. This is particularly important given the Outstanding and Exceptional Resource Water classifications of Black Earth Creek, since treatment plant expansion is likely to have expensive and stringent permit requirements.

Average daily water use by the Village is currently 0.34 mgd. Estimated water use for potential industrial land uses could represent about 20 percent of this total and may accelerate the need to construct another municipal well. Sufficient storage and water pressure will also need to be provided to meet fire protection needs.

Thus, with the proposed amendment, the water service and infrastructure impacts of potential "wet" industries could be of concern for the Village. In addition to the printing plant, the Village should encourage other low to moderate water use industries to lessen impacts on its water supply and waste treatment systems.

Other services to the proposed additions, such as police and fire protection, solid waste collection, street repair and snow removal, will be provided through the Village of Cross Plains' existing delivery systems.

Surface and Ground Water Impacts

The potential impacts of urban development in the proposed service area additions would be to increase stormwater runoff rates and volumes, reduce groundwater recharge and introduce additional contaminants to Brewery and Black Earth Creeks. This would result from roadway, parking area and building construction. Urban development could also cause soil erosion and stream siltation from construction activities. Additional wastewater from industrial uses will be generated and discharged from the Village treatment plant to Black Earth Creek, which will introduce higher pollutant (e.g., phosphorus) loadings to the creek.

The Village adopted an erosion and stormwater runoff control ordinance in 1989, which provides a basis for mitigating the adverse impacts of erosion and increased runoff resulting from development. Two stormwater detention basins are proposed in the area above CTH KP. One basin would be in the northwest corner of the industrial development and the other would be located within the existing environmental corridor. In order to provide water quality benefits, however, these basins should be designed to infiltrate and/or retain water for an extended period to filter sediment, nutrients and other pollutants. In addition, rooftop runoff from buildings should be directed to vegetated areas to encourage water infiltration. Stormwater quality management measures should be given careful consideration in light of the significance of Black Earth Creek and the commitment of public funding to protecting this water body. This is also important because industrial development near Black Earth Creek would be expected to generate higher pollutant levels in runoff, and have much greater direct impacts on the creek.

Part of the existing environmental corridor would be removed along the intermittent drainageway near CTH KP. However, a 100-foot vegetated buffer strip would remain and be sufficient to provide desired hydrologic and water quality functions.

The residential development in the proposed NE service area addition will also be subject to the provisions of the Village's erosion and runoff control ordinance. Currently, there is no stormwater detention site or environmental corridor defined for this area. On-site or regional stormwater management measures should be planned to control peak

rates of water runoff, though water quality impacts are not expected to be serious from this low-density (one-half acre lot) development.

Increased wastewater effluent also may affect Black Earth Creek. Of particular concern is additional phosphorus and potential toxic pollutant discharges that could be associated with industrial development. Measures to manage and reduce future industrial influent loadings may need to be evaluated. In addition, increased well pumping to serve industrial land uses may lessen groundwater contributions to stream baseflow. However, groundwater flow reductions should be minimal and the background level of stream baseflow is high enough to limit detrimental impacts.

Transportation System and Impacts

Transportation access to Area NE will be provided via CTH P, a major collector. The proposed subdivision would produce up to 460 new trips per day on CTH P, which is a major collector, but this added traffic would remain well within its capacity. Area SW will have access to USH 14 via CTH KP or Bourbon Road. The proposed business park would produce up to 2,200 trips per day on CTH KP, which would more than double the 1990 traffic on this highway, but this would remain well within the capacity of this major collector.

6. Alternatives

The process of revising the Village's Master Plan and the plan amendment for the Glacial Valley Commerce Park examined alternative locations for future development, taking into consideration protection of environmentally sensitive areas. The revised Master Plan provides for development of vacant lands in or near the Village which are contiguous to existing developing areas and needed for proposed commercial, industrial or residential growth, and which represent a cost-effective extension of Village services.

7. Controversies, Comments Received, Unresolved Issues

A public hearing is scheduled before the Dane County Regional Planning Commission on February 24, 1994. No controversies are noted, except for questions relating to stormwater management and possible water quality impacts to Black Earth Creek. The Village of Cross Plains previously held public meetings on the proposed change. The Town of Cross Plains Board will review the proposal at their February 21 meeting. The Town of Berry reviewed the proposal and had no comment.

8. Conclusions and Staff Recommendations

The urban service area amendment proposed by the Village of Cross Plains meets most of the requirements and criteria for planning, consistency with regional objectives and policies, and provision of urban services. The primary concern and unresolved issue that has been identified is whether the water quality impacts of industrial development--specifically increases in stormwater runoff and pollutant discharge--can be adequately mitigated. While this issue can be addressed through site-specific plans, it is

recommended that Cross Plains complete an overall stormwater management plan for the Village including the Enchanted Valley watershed. This was a stated condition of an earlier environmental corridor amendment for Glacier's Edge Square. Funding for the plan already has been provided through the Black Earth Creek Priority Watershed Project.

While the Village's infrastructure and water service system should not be seriously impacted by the proposed printing plant, other potential industries could pose concerns. Thus, the Village is encouraged to foster low-moderate water use industries. Due to the classification of Black Earth Creek, expansion of the Village wastewater treatment plant is likely to be subject to expensive and stringent regulatory control provisions.

The staff recommendation is to approve the proposed amendment, subject to the condition that the site design for Glacial Valley Commerce Park industrial area include provisions for adequate water quality protection for Black Earth Creek from runoff generated from the site, either through infiltration or other suitable on-site water quality management and protection practices. Staff further recommends that the erosion control and runoff provisions of its adopted erosion/runoff control ordinance are fully enforced on the sites, and that Cross Plains complete an overall stormwater management plan for the Village.

2/24/94

ADDENDUM TO
STAFF ANALYSIS OF PROPOSED AMENDMENT TO THE
DANE COUNTY REGIONAL DEVELOPMENT GUIDE, WATER QUALITY
AND FARMLAND PRESERVATION PLANS
REVISING THE CROSS PLAINS URBAN SERVICE AREA BOUNDARY AND
ENVIRONMENTAL CORRIDORS

This addendum presents clarification and additional specific information which became available after distribution of the 2/17/94 Staff Analysis of the proposed amendment.

Effects of Industrial Expansion on Wastewater Treatment Plant Capacity

The Staff Analysis indicated that the wastewater treatment plant had adequate reserve capacity to handle future projected flows through the year 2020, but that additional industrial flows could result in the need to expand the treatment plant prior to that date, if significant industrial flows were added to the present future flow projections. An analysis by the Village's engineer indicates that the present treatment plant, which was designed to serve through the year 2002, in fact has sufficient reserve capacity to handle projected flows, as well as expected industrial flows from the proposed expansion, through that period. Therefore, it should not be implied that industrial growth would result in *premature* need to expand the treatment plant. The principal issue and staff recommendation is the same in this regard, in that: (1) additional wastewater flows from industrial growth will necessitate earlier expansion of the plant than would otherwise be the case; (2) that expansion of the plant, when needed, will probably face more stringent and expensive treatment requirements; and (3) that the Village should conserve treatment plant capacity and encourage low to moderate water use industries.

Impacts of Water and Sewer Extensions and Stream Crossings

The Staff Analysis indicated that existing sanitary sewers and water mains would be extended to serve the proposed service area additions. Extension of water and sewer service to the industrial park in the southwest (SW) area involves crossing Black Earth Creek with both a wastewater force main and a water main. While water service will be extended to the industrial site west from the Bourbon Road area, the crossing of Black Earth Creek is necessary in order to provide a looped water system connected to the existing distribution system north of the creek. Inadequate grade prevents the extension of sanitary sewer service west from the Bourbon Road area to the industrial site, so it will be necessary to provide a lift station at the industrial site pumping through a short force main crossing Black Earth Creek to the wastewater treatment plant.

These utility crossings of Black Earth Creek will result in temporary impacts during construction. The stream crossings will require a DNR permit, and compliance with DNR criteria and permit requirements should minimize the short-term disturbance and impacts, and avoid long-term impacts from the crossings.

Status of Village Stormwater Planning

The staff recommendations indicate the desirability of the Village of Cross Plains completing an overall stormwater management plan for the Village, including the Enchanted Valley watershed. It should be acknowledged that work on this plan is underway, and it is expected that the plan should be completed by the end of 1994.

Endangered Species

The Staff Analysis indicated that general mapping available to us indicated the existence of endangered species or communities associated with Black Earth Creek adjacent to or downstream from the proposed industrial site in the SW area; however, no specific information was available in regard to the nature or specific location of these species or communities. Additional information obtained from DNR is as follows:

A plant species has been identified along the railroad right-of-way as being of "state special concern." It is not currently recognized on the Wisconsin Endangered and Threatened Species List, though it is being reviewed at the federal level for possible inclusion.

Revision of Proposed Environmental Corridors

Additional details on site design of the industrial site indicate enlargement of the proposed environmental corridors to incorporate stormwater runoff management practices (retention/infiltration basins, etc.). The changes result in a net addition of 0.3 acres in environmental corridors and 50.3 acres of developable land in the two additions, and are reflected in the revised resolution and map.

SECOND ADDENDUM TO
STAFF ANALYSIS OF PROPOSED AMENDMENT TO THE
DANE COUNTY REGIONAL DEVELOPMENT GUIDE, WATER QUALITY
AND FARMLAND PRESERVATION PLANS
**REVISING THE CROSS PLAINS URBAN SERVICE AREA BOUNDARY AND
ENVIRONMENTAL CORRIDORS**

This addendum presents additional specific information which was requested by the Regional Planning Commission at their 2/24/94 meeting.

Comment from the Town of Cross Plains

The Cross Plains Town Board met on February 21, 1994 and reviewed the proposed urban service amendment; however, the RPC did not receive any comments prior to their 2/24/94 meeting. Walter Haack, Town chairperson, indicated that the Town was not opposed to the proposed Glacial Valley Commerce Park and that the Town did support upgrading area roads, including Bourbon Road.

Providing for Continuing Maintenance of Stormwater Management Practices

Testimony at the public hearing indicated concern regarding the need to provide continuing maintenance of stormwater management practices required as a condition of amendment approval. The suggestion was made that a performance bond be established to ensure adequate funds for continued maintenance.

Staff recommends that the Village assume responsibility for continuing maintenance of the principal site stormwater management practices (channels, detention/retention/infiltration basins), and require a performance/maintenance bond be provided for any site stormwater management practices which are the responsibility of the site landowners/developers. Resolution RPC No. 694 has been revised to include this recommendation.

THIRD ADDENDUM TO
STAFF ANALYSIS OF PROPOSED AMENDMENT TO THE
DANE COUNTY REGIONAL DEVELOPMENT GUIDE, WATER QUALITY
AND FARMLAND PRESERVATION PLANS
REVISING THE CROSS PLAINS URBAN SERVICE AREA BOUNDARY

This addendum presents additional specific information which was requested by the Regional Planning Commission at their 2/24/94 meeting. The Commission also requested separation of the two proposed amendments. This addendum addresses the proposed amendment in Area NE (Ziegler property) proposed for residential development.

Residential Density in Area NE - the Ziegler Property

The question was raised at the 2/24/94 public hearing on the proposed amendment as to how the residential densities in the amendment area compared to residential densities in the City of Madison Blackhawk Neighborhood Plan, as an example.

The proposed amendment would include the remainder of the Ziegler property, proposed for single-family residential development at a density of 3.2 units per acre. This development is part of a larger Village neighborhood. The overall residential density for the village is 4.2 units per acre.

For comparison purposes, the City of Madison Blackhawk Neighborhood Plan proposes single-family residential development at 3.0 units per acre, and an overall residential density of 4.5 units per acre.

